REMARKS/RESPONSE

Reconsideration of this application is respectfully requested.

At the time of the last Office Action (Paper No.7), Claims 1-4 were pending. Claims 1-4 remain in this application and have been amended to overcome the rejections stated in the Office Action.

In the Office Action, the following matters were raised or actions taken:

(1) Rejection of claims 1-4 under 35 U.S.C. §103(a)

RESPONSE:

The obviousness rejection as it might be applied to the amended claims 1-4 is respectfully traversed for the following reasons.

The essence of the present invention as defined by amended claims 1-4 is a slurry processing system in which treatment water produced by an on-shore treatment facility is supplied to a sludge hopper and slurry processing unit on a dredging barge for use as slurry make-up water and for slurry viscosity adjustment, and then is recycled over and over again. This system (1) reduces the total amount of fresh make-up water needed for the dredging operation, (2) prevents the release of treatment chemicals into the surrounding waterway, (3) prevents the release of contaminated slurry into the waterway, and (4) reduces the total amount of contaminated treatment water that must undergo decontamination and disposal.

Process treatment water produced during on-shore treatment is recovered and conveyed to the slurry processing unit by a return pipeline in a closed loop arrangement allowing the process treatment water to be used and recycled for use as

make-up water for mixing with contaminated sludge and for specific gravity adjustments in the sludge processing unit without releasing process treatment water or slurry into the body of water while the contaminated sludge is being processed .

Freshly dredged sludge is mixed with the treatment water to produce slurry that is pumped through a buoyant delivery pipeline to the onshore treatment facility. After liquid-solids separation, the treatment water is returned to the dredging barge through a buoyant return pipelines for re-use as make-up water. The slurry processing unit, delivery pipeline, on-shore treatment vessel, and return pipeline are all connected in series closed loop relation. This recycling of process treatment water is accomplished without releasing or returning the process treatment water (which contains toxic fines and treatment chemicals) or the contaminated slurry into the body of water while the contaminated sludge is being processed.

According to **Taylor '635**, a slurry is produced by mixing water taken from the surrounding waterway and mixing it with sludge. The slurry is then transported via a buoyant pipeline to an on-shore facility for decontamination and disposal. That *open-loop* process is quite effective for removing sludge from waterways. However, it requires a continuous supply of fresh make-up water, which is usually taken from the surrounding waterway. This generates a corresponding large amount of process treatment water at the on-shore facility that must be disposed of and must undergo decontamination prior to disposal. Decontamination of the process treatment waste water imposes a substantial increase on the overall remediation costs. After decontamination, disposal is usually performed by draining the waste water into

holding ponds, releasing it back into the waterway, or simply dumping it and allowing it to drain into the local groundwater reservoir. Such disposal techniques are subject to stringent environmental controls and are not always available, or may not be permitted by regulations.

According to **Japan '931**, sludge 24 is lifted hydraulicly through a concentric arrangement of pipes. The sludge is lifted by pumping water into the annulus between the pipes and discharging the pressurized water into the sludge deposit surrounding the entry port of the inner pipe. Contact of the pressurized water against the sludge deposit produces an aqueous slurry that is pumped upwardly through the inner pipe and deposited into a sludge collection box 11. The hydraulic lift is assisted by compressed air discharged into the inner pipe. The slurry is screened and then conveyed through a flow pipe 24 into an "earth-sand " selector 7 and thereafter into a muddy water processor 6, and then into a water tank 5. Instead of safe remote disposal, the muddy water is pumped directly back into the body of water.

Note in Fig. 1 of **Japan '931** that the pressurized return water discharge annulus surrounding the uplift tube 16 is submerged in the body of water and is thus discharges *muddy return water*, along with any process treatment chemicals introduced by the muddy water processor 6, directly into the waterway. Note also that the return pipe discharges the muddy return water into the sludge deposit, so that the muddy water mixes immediately with the surrounding fresh water. Any chemical treatment materials introduced by the muddy water processor 6, along with sludge particles entrained in the muddy return water, are continuously reintroduced as an

aqueous slurry back into the surrounding body of water, thus spreading the toxic sludge particulates into the waterway.

It is not clear from the translation as to whether the muddy water processor 6 introduces any chemical contaminants. However, even if it does not, the muddy return water will contain suspended and entrained sludge particles that are immediately discharged back into the surrounding body of water. That is, even though **Japan '931** discloses re-circulation of water drawn from the surrounding body of water, that reference makes no provision for maintaining the muddy return water *separate and apart* from the waterway. The sludge layer is constantly being "stirred up" by the pressurized muddy return water as it is discharged into the sludge. The contaminated sludge particulates entrained in the "muddy" return water are discharged under high pressure back into the surrounding water. This turbulent intermixing action will cause the contaminated sludge particulates to disperse throughout the surrounding body of water, thus converting the surrounding fresh water into turbid water.

Japan '931 thus teaches away from Applicant's closed loop system in which process treatment water from a treatment facility is carefully contained in a return pipeline and also within the on-board hopper and sludge processing unit where it is used for sludge dilution and for specific gravity control of the slurry mixture, and also carefully contained in a delivery pipeline while transporting the slurry mixture to the on-shore treatment facility. In Applicant's arrangement, *no portion* of the process treatment water or the slurry is released into the surrounding waterway at any time.

The Applicant concedes that **Sheets '017** discloses a spray nozzle for treating dredged materials within in a container. However, **Sheets** fails to disclose or suggest a closed loop slurry processing system in which process treatment water is recycled and re-used continuously, first as makc-up water for conditioning untreated sludge in a slurry processing unit, and then as a liquid medium for transporting the pre-conditioned slurry to the on-shore treatment facility for decontamination and liquid-solids separation, in which the process treatment water and the untreated slurry are carefully controlled and contained at all times to prevent release or return into the surrounding waterway..

For these reasons, **Taylor '635** cannot be combined with **Japan '931** or **Sheets '017** to suggest the subject matter of claims 1- 4, as amended, within the meaning of 35 U.S.C. §103(a).

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CLAIM FEE CALCULATION

	Remaining After Amendment		Highest No. Previously Paid For		Present Extra		Small Entity Rate		Add'l. Fee
Total Claims	4	Minus	20	=	-0-	x	$ 9	=	$ -0-
Indep. Claims	4	Minus	5	=	-0-	x	$ 43	=	$ -0-
						TOTAL			$ **-0-**

No additional fee is payable in connection with this amendment, since the total number of independent and dependent claims remains unchanged or has been reduced.

CONCLUSION

This application appears to be in condition for allowance in light of the amendments and remarks set forth above. Applicant respectfully requests reconsideration and allowance of amended claims **1-4.** A Notice of Allowance is requested.

If there are any matters remaining that may be clearcd up by interview, please call Applicant's attorney at (972) 447-4569.

Respectfully submitted,

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